義隆電子股份有限公司
ELAN MICROELECTRONICS CORP.

ICE803
User manual

FOR

EM78P803

EM78805C

Version 1.1

ELAN MICROELECTRONICS CORP.
No. 12, Innovation 1st RD., Science-Based Industrial Park
Hsin Chu City, Taiwan
TEL: (03) 5639977
FAX: (03) 5780617

I. Introduction

E8 ICE is intended to provide the product development engineer a powerful microcontroller design tool. The E8 ICE operates on PC compatible 386 and above machines

1. System Requirement

1. EGA and above MONITOR.
2. 1M RAM.
3. and above IBM PC compatible machines.
4. In circuit emulator (ICE).
5. PC host ICE control software.
6. 16V 500mA power adapter.
7. ICE software setup by soft disk: extracted WICE20.ZIP file and run setup.exe.
8. You can get User manual or other software at EMC internet . www.emc.com.tw
9. Customer => download => micro controller (8-bit) =>ICE software

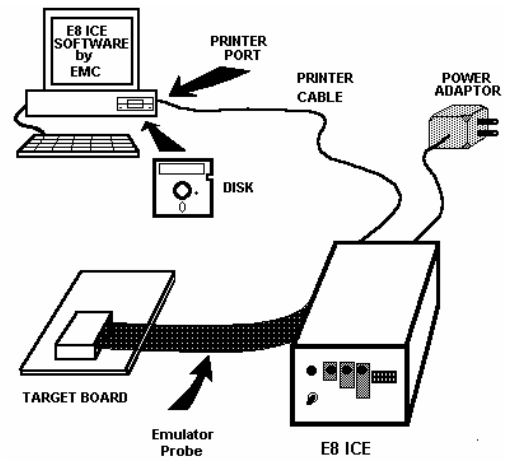
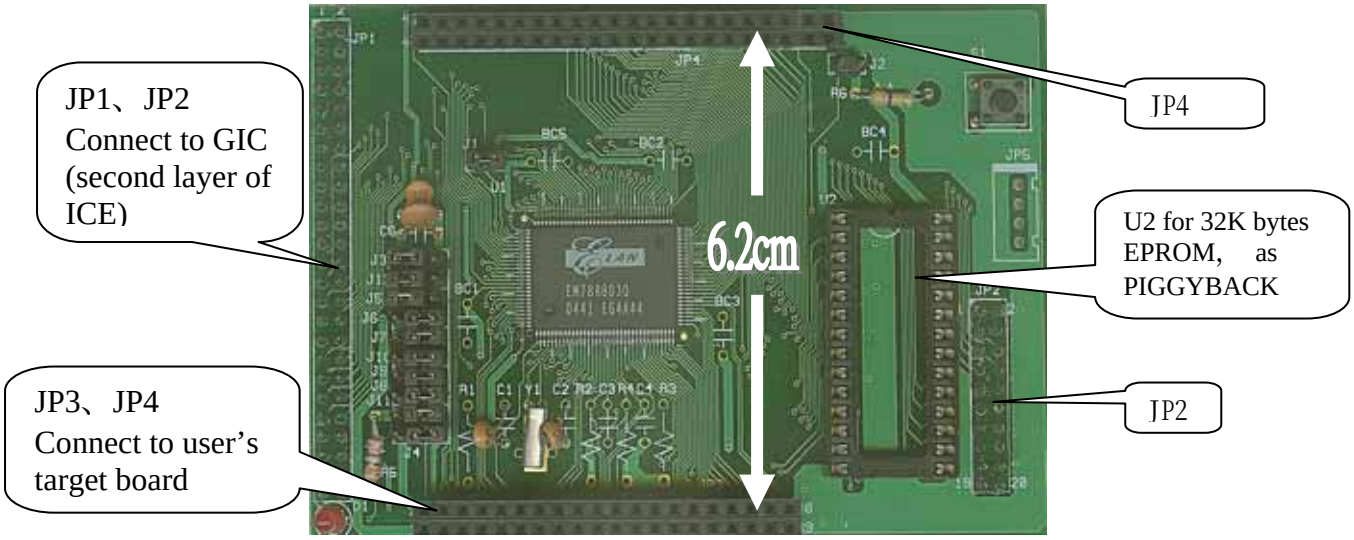


Figure1 ICE System Configuration



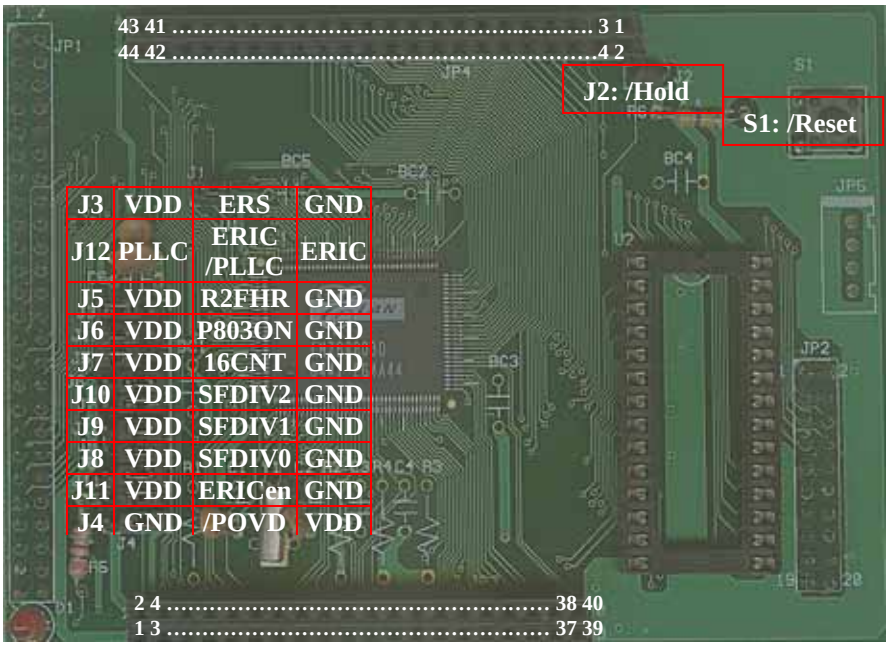

43 41 ..... 3 1
44 42 ..... 4 2
J2: /Hold
S1: /Reset
J3 VDD ERS GND
J12 PLLC ERIC /PLLC ERIC
J5 VDD R2FHR GND
J6 VDD P803ON GND
J7 VDD 16CNT GND
J10 VDD SFDIV2 GND
J9 VDD SFDIV1 GND
J8 VDD SFDIV0 GND
J11 VDD ERICen GND
J4 GND /POVD VDD
2 4 ..... 38 40
1 3 ..... 37 39

Figure2 ICE Outline

2. Components description:

Table 1:

Symbol	Function	Description
U1	EM78R803	EM78R803 Romless IC
U2	27C256/27C512	8-bit data width DIP package memory (EPROM). It mimicked to 16K word (32K bytes) embedded Program ROM.
Y1	Oscillator	32.768KHz crystal.
S1	Reset button	Reset from /Reset pin.
JP1	ICE interface	Connect to GIC board
JP2	ICE interface	Connect to GIC board
JP3	Function pin	Connect to user application board, refer to Table3.
JP4	Function pin	Connect to user application board, refer to Table3.
J1	VDD/VDDI	Measure Power consumption
J2	Program HOLD	Open : developing program on ICE. Short : Run on Piggyback.
J3	Program ROM select	Connect to VDD : GIC mode, emulate with PC. Don't connect U2 Connect to GND : External Rom mode, U2 as program Rom.
J4	/POVD	Connect to VDD : POVD function disable Connect to GND : POVD function enable
J5	R2FHR	Connect to VDD : enable R to F function Connect to GND : disable R to F function
J6	P803ON	Please Table2.
J7	16CNT	Connect to VDD : enable 16bits counter Connect to GND : disable 16bits counter
J8~J10	SFDIV0~2	Scale factor of main frequency
J11	ERICen	Connect to VDD : ERIC mode Connect to GND : Crystal mode
JP12	PLLC/ERIC	PLLC/ERIC as PLLC connect capacitance to GND. PLLC/ERIC as ERIC, connect resistance to VDD.
R1	Resistance	Resistance for ERC mode
R2	Resistor sensor	Connect R to F resistor sensor for RS pin
R3	Resistor sensor	Connect R to F resistor sensor for CRS pin, and short C3.
R4	Resistance	Connect R to F reference resistance for RF pin
R6	Resistance	Pull high resistance for /Reset
C1	Capacitance	22P~27P for crystal oscillator
C2	Capacitance	22P~27P for crystal oscillator
C3	Capacitor sensor	Connect R to F capacitor sensor for CRS pin, and short R3.
C4	Capacitance	Connect R to F reference capacitance for CF pin
C5	Capacitance	103p~104p for PLLC.
D1	LED	Indicates Power.

Table2:

J6	GND	VDD
	For 805C	For 803
ROM size	12k x 13b	16k x 13b
I/O	22	28
Main Clock	3.5826MHz x 1/8, 1/2, 1, 2	3.5826MHz x 1/2, 1, 2, 4 and ERIC mode
LCD	24 Segment. 1/4 Bias	28 Segment. 1/3, 1/4 Bias
Counter reload	disable	enable

3. Power on the E8 ICE before executing the control software, or an error message due to lack of hardware will appear.

4. E8 - ICE uses the printer port to communicate with host PC. If a user wants to use the printer, it is recommended to install another printer port.

5. Power on switch located on the left side of ICE box. By switching left or right side to turn off or turn on the ICE power.

6. Printer port and the adapter locate on the right side. The ICE connects to personal computer by printer port. The adapter connects to the power. Besure turn power off of ICE before plug in the adapter for avoiding over current which may be burn the chip off.

7. On the top sight, we have four connections and one EM78R803 Romless chip and some switches. The JP1 and the JP2 connect to the second layer of ICE(called GIC layer) for the code instruction accessing. The JP3 and the JP4 is more important for ICE user. They are the EM78803 control signals and I/O ports. ICE user can connect these connections to user's application board. The connections are list in Table3.

8. The U1 is EM78R803 Romless chip. The U2 can place a 32K/64K Bytes ROM for on-board testing one day by piggyback. If user have developed application program by this ICE. User can use PIGGYBACK (user can buy from ELAN) to connect to user's application board with 32K/64K Bytes EPROM (27C256/27C512). To verify user's program.

9. ICE setup: (1)Y1=> 32.768kHz crystal (2) J1 short (3)J2 open (4)J3 connect to VDD

10. PIGGYBACK setup. (1)Y1=> 32.768kHz crystal (2)J1 short (3)J2 short (4)J3 connect to GND (5)U2=> 32k/64k bytes EPROM (27C256/27C512)

(User can use file "*.MIX" which generate by WICE for masking EPROM . The *.mix file is a binary file and addressing from zero.)

11. RUN WICE software to enter ICE environment.

II. ICE connect interface to application board

Table3:

	pin	Name	pin	Name	pin	Name	pin	name	Pin	name
JP3	1	GND	11	NC	21	CF/P61	31	SEG0		
	2	GND	12	NC	22	IN/P60	32	SEG1		
	3	DEDD	13	NC	23	COM0	33	SEG2		
	4	ERIC	14	NC	24	COM1	34	SEG3		
	5	TONE	15	P67	25	COM2	35	SEG4		
	6	NC	16	P66	26	COM3	36	SEG5		
	7	NC	17	P65	27	COM4	37	SEG6		
	8	NC	18	RS/P64	28	COM5	38	SEG7		
	9	P74/RING	19	CRS/P63	29	COM6	39	SEG8		
	10	P75/TIP	20	RF/P62	30	COM7	40	SEG9		
JP4	1	VDD	11	P72	21	P803ON	31	SEG23/P57	41	SEG13
	2	VDD	12	P73	22	P804C	32	SEG22/P56	42	SEG12
	3	NC	13	P70	23	ERICen	33	SEG21/P55	43	SEG11
	4	/RESET	14	P71	24	SFDIV0	34	SEG20/P54	44	SEG10
	5	NC	15	P97	25	SFDIV1	35	SEG19/P83		
	6	NC	16	P96	26	SFDIV2	36	SEG18/P82		
	7	P76	17	P95	27	SEG27	37	SEG17/P81		
	8	P77	18	P94	28	SEG26	38	SEG16/P80		
	9	P74/RING	19	R2FHR	29	SEG25	39	SEG15		
	10	P75/TIP	20	NC	30	SEG24	40	SEG14		